Draft Health Advisory: Safe Eating Guidelines for Fish and Shellfish from Lake Berryessa and Putah Creek (Napa, Yolo, and Solano Counties)

a fact sheet by the
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

February 2006

Why has OEHHA developed a new health advisory and safe eating guidelines for fish from Lake Berryessa and nearby Putah Creek?

Virtually all fish contain detectable levels of mercury; however, studies indicate that certain types of fish in Lake Berryessa and Putah Creek contain elevated levels of mercury that could pose a health risk to people who eat them frequently. The State of California issued a fish consumption advisory for Lake Berryessa in 1987. Since that time, more samples of fish have been collected as part of studies on mercury contamination in the Putah Creek watershed.

The Office of Environmental Health Hazard Assessment (OEHHA) used the additional information from these studies to evaluate the health effects of eating fish from Lake Berryessa and Putah Creek, and to issue an updated advisory for Lake Berryessa and new "safe eating guidelines" for Putah Creek. The new draft guidelines reflect current scientific information on mercury, and will be finalized following a public comment period during which the public can review and provide comments on the report and safe eating guidelines.

The safe eating guidelines include a "best choices" table that identifies, as appropriate, fish containing very low levels of mercury that can be eaten up to three times a week. The guidelines also include a "caution" table, with fish whose consumption should be restricted to one meal per week or less. One set of guidelines applies to women of childbearing age and children age 17 years and younger, who are particularly sensitive to methylmercury (the most prevalent form of mercury in fish). A second set applies to women beyond their childbearing years and men.

Because methylmercury affects the developing nervous system, women of childbearing age and children age 17 years and younger should carefully follow guidelines for eating these fish.

Does the water in the lake or creek pose a hazard?

No. As explained below, mercury tends to accumulate in fish, but not in the water itself. Physical contact with the water is safe.

Why is mercury found in fish from this region?

Mercury contamination in fish is a global problem. Emissions from volcanoes and coal-burning power plants release mercury into the air, where it can be carried worldwide before being deposited into oceans, lakes, and reservoirs. In northern California, however, the presence of mercury in fish is also a legacy of mining. The California Coastal Range is rich in mineral deposits, including cinnabar. Prospecting for gold and

mercury has been an important activity in the area since the mid-1800s. The East Mayacmas Mining District in northwest Napa and southern Lake counties was one of the principal mercury mining areas in the Putah Creek watershed between the 1870s and 1944. The area is rich in geothermal springs, which are also important sources of mercury and other ores. Mercury from natural weathering and mercury-containing waste from mines can contaminate nearby water bodies.

Once mercury accumulates in bottom sediments in lakes or other water bodies, bacteria convert mercury into a more toxic form known as methylmercury, which fish take in from their diet. Methylmercury can build up in fish to concentrations many thousands of times greater than mercury levels in the surrounding water. Because methylmercury accumulates in fish slowly over time, larger fish of a species usually have higher concentrations of methylmercury than smaller fish from the same water body. Predatory fish, such as bass, tend to have higher levels of methylmercury than other fish, such as trout, which feed on aquatic insects and other invertebrates.

What are the human health effects of methylmercury found in these fish?

Developing fetuses and children are especially sensitive to methylmercury. Pregnant women and nursing mothers can pass methylmercury to their babies through the placenta and through breast milk. Excessive exposure to methylmercury can affect the nervous system in children, leading to subtle decreases in learning ability, language skills, attention, and memory. These effects may occur through adolescence as the nervous system continues to develop. For this reason, a more conservative set of guidelines applies to women of childbearing age and children up to and including age 17.

In adults, the most subtle symptoms of methylmercury toxicity are numbness and tingling sensations in the hands and feet or around the mouth. The levels of methylmercury found in fish from Lake Berryessa and Putah Creek should not result in the health effects described above if the proposed guidelines are followed.

Can I still eat fish from these water bodies?

Yes. Fish are a nutritious part of the diet when eaten in moderate amounts. By following OEHHA's safe eating guidelines, you can still enjoy eating fish from these water bodies while minimizing the risk of health effects from exposure to methylmercury. Because of the increased sensitivity to methylmercury during development, it is particularly important for women of childbearing age and children to follow the guidelines provided and select the types of fish that are lowest in mercury. For example, women of childbearing age and children can eat up to three meals a week of trout or Sacramento blackfish from Putah Creek, provided no other fish are eaten that week.

Choose fish that are low in mercury from the "Best Choices" guidelines to continue to enjoy the benefits of eating sport fish.

There are more options for women beyond childbearing age and men. The safe eating guidelines allow for women beyond childbearing age and men to eat as many as three meals a week of trout or kokanee from Lake Berryessa; or three meals a week of trout, Sacramento blackfish, bluegill or other sunfish, catfish, sucker, carp, or crayfish from Putah Creek. Of these, trout and blackfish had the lowest levels of mercury and could be eaten daily.

Because almost all ocean and freshwater fish contain some level of methylmercury, consider your total fish consumption when making choices about how much and which types of fish to eat. For example, the federal government advises women of childbearing age and children aged 17 years and younger not to eat shark, swordfish, king mackerel, or tilefish, because these ocean species tend to have high mercury levels. Women of childbearing age and children can safely eat up to two meals a week of a variety of commercial fish, but only if they do not eat sport fish from local water bodies in the same time period. If you eat fish caught from other water bodies in California, check whether OEHHA has issued an advisory for that location. If there are no consumption guidelines for a specific water body, fish caught from that location should be eaten sparingly.

What are the next steps in OEHHA's evaluation?

OEHHA is seeking public comment on the safe eating guidelines for Lake Berryessa and Putah Creek, and the draft report that describes how they were developed. OEHHA staff scientists will make a presentation, answer questions, and accept comments on the draft advisories at a public workshop on February 27, 2006, at 9:30 a.m. at the Napa County Board of Supervisors Conference Room, Third Floor, 1195 Third St., Napa, and on February 28, 2006, at 6:30 p.m. at the Winters Library, 201 First St., Winters. Written comments can also be sent directly to Dr. Margy Gassel at OEHHA's address below until March 20, 2006. OEHHA will review all comments before issuing a final report and consumption guidelines.

Where can I get more information?

For information on mercury and other contaminants in sport fish in California, or to submit comments, contact:

Office of Environmental Health Hazard Assessment (OEHHA)
1515 Clay Street, 16th Floor
Oakland, California 94612
Telephone (510) 622-3170 FAX (510) 622-3218
Or visit the OEHHA Web site at: http://www.oehha.ca.gov (Click on "Fish")

For information on mercury in commercial fish, contact:

U.S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
1 (888) SAFEFOOD or http://www.cfsan.fda.gov/~dms/admehg3.html

DRAFT SAFE EATING GUIDELINES
FISH CONSUMPTION AT LAKE BERRYESSA

Fish are nutritious and should be part of a healthy, balanced diet. It is important, however, to choose your fish wisely. OEHHA recommends that you choose fish to eat that are low in mercury, including the following fish caught from Lake Berryessa.

BEST CHOICES **(Up to 3 times a week)**
Women of childbearing age and children 17 years and younger:
There are no best choices for this population at Lake Berryessa
Women beyond childbearing age and men:
Trout or kokanee

Because some other types of fish from Lake Berryessa contain higher levels of mercury, OEHHA provides the following recommendations that you can follow to reduce the risks from exposure to methylmercury in fish.

CAUTION	
Women of childbearing age and children 17 years and younger:	
AVOID **(No more than one meal a month)**	Black bass, catfish, and chinook (king) salmon
EAT SPARINGLY **(No more than one meal a week)**	Bluegill or other sunfish, trout, or kokanee
Women beyond childbearing age and men:	
EAT SPARINGLY **(No more than one meal a week)**	Black bass, catfish, bluegill or other sunfish, or chinook (king) salmon

- **CONTACT WITH THE WATER IS SAFE.**
- **EAT SMALLER FISH OF LEGAL SIZE**. Fish accumulate mercury as they grow.
- **SERVE SMALLER MEALS TO CHILDREN**. Meal size is assumed to be 8 ounces for a 160-pound adult. If you weigh more or less than 160 pounds, add or subtract one ounce to your meal size, respectively, for each 20-pound difference in body weight.
- **DO NOT COMBINE FISH CONSUMPTION ADVICE**. If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and locations should not be combined.
- **CONSIDER YOUR TOTAL FISH CONSUMPTION**. Fish from many sources (including stores and restaurants) can contain elevated levels of mercury and other contaminants. If you eat commercial and/or sport fish with lower contaminant levels, you can safely eat more fish. The American Heart Association recommends that healthy adults eat at least two servings of fish per week. Commercial fish such as shrimp, king crab, scallops, farmed catfish, wild ocean salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury, as do the local fish in the "Best Choices" table.
- **FISH FROM MANY OTHER WATER BODIES ARE KNOWN OR SUSPECTED TO HAVE ELEVATED MERCURY LEVELS**. Not all water bodies in California have been tested. It is recommended that fish from places without an advisory be eaten sparingly.

DRAFT SAFE EATING GUIDELINES
FISH CONSUMPTION AT PUTAH CREEK

Fish are nutritious and should be part of a healthy, balanced diet. It is important, however, to choose your fish wisely. OEHHA recommends that you choose fish to eat that are low in mercury, including the following fish caught from Putah Creek.

BEST CHOICES **(Up to 3 times a week)**
Women of childbearing age and children 17 years and younger:
Trout or Sacramento blackfish
Women beyond childbearing age and men:
Trout*, Sacramento blackfish*, bluegill or other sunfish, catfish (including bullheads), sucker, carp or goldfish, or crayfish

* Trout or blackfish may be eaten daily by women beyond childbearing age and men.

Because some other types of fish from Putah Creek contain higher levels of mercury, OEHHA provides the following recommendations that you can follow to reduce the risks from exposure to methylmercury in fish.

EAT SPARINGLY **(No more than one meal a week)**
Women of childbearing age and children 17 years and younger:
Black bass, bluegill or other sunfish, carp or goldfish, catfish (including bullheads), crappie, sucker, hitch, or crayfish
Women beyond childbearing age and men:
Black bass, crappie, or hitch

- **CONTACT WITH THE WATER IS SAFE.**
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